

### **REMARKS**

In the outstanding Office Action, the Examiner rejected claims 1-7 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,121,689 to Capote et al. ("Capote"), in view of U.S. Patent No. 6,426,556 to Lin ("Lin"); and rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Capote and Lin in view of U.S. Patent No. 6,077,726 to Mistry et al. ("Mistry").

By this amendment, Applicant proposes amending claim 1, and canceling claims 2 and 4. Entry of the proposed amendment would result in claims 1, 3, and 5-20 pending in this application, with claims 1, 3, and 5-8 presented for examination.

#### **I. Rejection under 35 U.S.C. sec. 103(a)**

Regarding the rejection of claims 1-8 under 35 U.S.C. § 103(a), Applicant initially notes that the rejection of canceled claims 2 and 4 is moot. Moreover, Applicant respectfully disagrees with the Examiner's arguments and conclusions as set forth in the outstanding Office Action. Accordingly, Applicant respectfully traverses this rejection.

To establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a

reasonable expectation of success must exist. Moreover, each of the three requirements must “ be found in the prior art, and not be based on applicant’s disclosure. ” See MPEP § 2143, 8th Ed. (Rev. 4), October, 2005.

In this application, no *prima facie* case of obviousness has been established for at least the reason that the references, in combination, fail to teach each and every element of the claims.

A. Claims 1, 3, and 5-7

With regard to claim 1, the Examiner states

Capote teaches a semiconductor chip having a semiconductor element or an integrated circuit formed in the semiconductor chip (Fig. 15, 10), a plurality of bump electrodes (Fig. 15, 14) provided on a surface of the passivation film (Col 10 Ln 40-41), a wiring board (Fig. 15, 20) having a plurality of connecting electrodes being electrically connected to the bump electrodes (Fig. 15, 12); and a resin molding filled in a space between the semiconductor chip and the wiring, the electrically connected bump electrodes and the connecting electrodes being arranged in the space (Fig. 15, 22), wherein the resin molding is formed of a resin having a flux function and changed from liquid to solid when the bump electrodes are in a molten state (Col 4 Ln 14-24). Office Action, page 2.

The Examiner concedes, however, that “Capote does not teach a low dielectric constant insulating film formed on a surface of the semiconductor chip, a passivation film formed on a surface of the low dielectric constant insulating film.” Office Action, page 3.

To cure the above-noted deficiency of Capote, the Examiner cites Lin, stating

Lin teaches a low dielectric constant insulating film formed on a semiconductor surface (Fig. 15, 29), and a passivation film formed on the insulating film (Fig. 15, 32) ... [and] [i]t would have been obvious to one of ordinary skill in the art at

the time the invention was made to provide an insulating film and a passivation film on the chip surface of Capote as taught by Lin in order to provide surface protection for the chip. *Id.*

Contrary to the Examiner's assertion, Lin does not teach that dielectric layer 29 is a "low dielectric constant insulating film having a relative dielectric constant of about 3.5 or less," as recited in amended claim 1 (emphasis added). Lin teaches only that "dielectric material for layer 29 can be used any of the typically applied dielectrics such as silicon dioxide (doped or undoped), silicon oxynitride, parylene or polyimide, spin-on glass, plasma oxide or LPCVD oxide." Lin, column 7, lines 40-43. Not only does Lin fail to provide any teaching or suggestion that the listed materials have "a relative dielectric constant of about 3.5 or less," as recited in amended claim 1, but Applicant also respectfully submits that these materials do not have a relative dielectric constant of about 3.5 or less. Accordingly, Lin fails to teach or suggest that dielectric layer 29 is a "low dielectric constant insulating film having a relative dielectric constant of about 3.5 or less formed on a surface of the semiconductor chip," as recited in amended claim 1.

Although the Examiner concedes that "Capote does not teach a low dielectric constant insulating film formed on a surface of the semiconductor chip," in rejecting claim 2, the Examiner states that Capote teaches "an insulating film with a dielectric constant of about 3.5 or less, comprised of benzocyclobutene (col. 10, lines 40-41)." Office Action, page 3. However, contrary to the Examiner's assertion, the cited portion of Capote, states: "[g]enerally, the chip 10 is passivated with a thin layer of either silicon nitride, polyimide, or benzocyclobutene." This merely teaches that a thin passivation

layer is formed on the chip 10, and the thin passivation layer may be made of silicon nitride, polyimide, or benzocyclobutene. In other words, Capote teaches only that, benzocyclobutene is a material of the passivation layer. Accordingly, this cannot constitute a teaching of "low dielectric constant insulating film having a relative dielectric constant of about 3.5 or less formed on a surface of the semiconductor chip," as recited in amended claim 1.

Because Capote and Lin fail to teach or suggest every element recited in amended claim 1, a *prima facie* case of obviousness has not been established. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 1 under 35 U.S.C. § 103(a).

Claims 3 and 5-7 depend from claim 1 and thus require all of the elements recited in claim 1. Because Capote and Lin fail to teach or suggest every element recited in claim 1, that combination of references also fails to teach or suggest each and every element required by the dependent claims. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 3 and 5-7 under 35 U.S.C. § 103(a).

B. Claim 8

Claim 8 depends from claim 1, and thus requires all of the elements recited in claim 1. As discussed above, Capote and Lin fails to teach at least "low dielectric constant insulating film having a relative dielectric constant of about 3.5 or less formed on a surface of the semiconductor chip," as recited in amended claim 1, and required by claim 8. Mistry fails to cure this deficiency of Capote.

Mistry is cited because the reference allegedly “teaches a passivation film comprising at least one layer formed of an organic film coating a connecting electrode.” Office Action, page 4. Mistry teaches “forming a polyimide layer (16) over a passivation layer (14).” Mistry, abstract (emphasis added). Mistry thus fails to teach “a low dielectric constant insulating film having a relative dielectric constant of about 3.5 or less formed on a surface of the semiconductor chip,” as recited in amended claim 1, and required by claim 8.

Since neither Capote, nor Lin, nor Mistry teaches or suggests every element required by claim 8, a *prima facie* case of obviousness has not been established. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 8 under 35 U.S.C. § 103(a).

Applicant respectfully requests that this Amendment under 37 C.F.R. § 1.116 be entered by the Examiner, placing claims 1, 3, and 5-8 in condition for allowance. Applicant submits that the proposed amendments of claim 1 does not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships claimed were either earlier claimed or inherent in the claims as examined. Therefore, this Amendment should allow for immediate action by the Examiner.

Furthermore, Applicant respectfully points out that the final action by the Examiner presented some new arguments as to the application of the art against Applicant's invention. It is respectfully submitted that the entering of the Amendment

would allow the Applicant to reply to the final rejections and place the application in condition for allowance.

Finally, Applicant submits that the entry of the amendment would place the application in better form for appeal, should the Examiner continue to dispute the patentability of the pending claims.

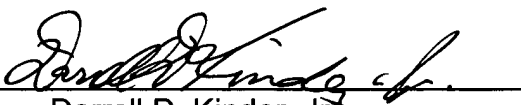
In view of the foregoing remarks, Applicant submits that this claimed invention, as amended, is neither anticipated nor rendered obvious in view of the prior art references cited against this application. Applicant therefore requests the entry of this Amendment, the Examiner's reconsideration and reexamination of the application, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

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By:   
Darrell D. Kinder, Jr.  
Reg. No. 57,460